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(54) Title: HEAD SUPPORT



NECK BRACE/HARNESSE/USER

(57) Abstract: The invention relates to head or neck supports which support the head or neck in a tilted back position and comprises or includes: a) a harness locatable to the upper body portions of a person, b) a rigid member extending from a region of said harness stabilised in respect of and by the use of the harness relative to the body, wherein, when in use, said harness is attached to the body of a person, said rigid member extending therefrom to provide a support region thereof which when said person is in a substantially upright position, and the head is tilted backwards to allow viewing of an object above the horizontal, said support region comes in contact with at least part of the back of the head and provides at least vertical support to the head.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

HEAD SUPPORT

FIELD OF INVENTION

5 The present invention relates to improvements in or relating to head supports. More particularly but not exclusively it relates to head or neck supports which support the head or neck in a tilted back position, and/or to provide support for viewing objects above the horizontal.

BACKGROUND TO THE INVENTION

10 In activities such as climbing, fruit picking, plastering, painting or attending air shows or the like where a person is, for long durations, required or desired to have his/her head tilted back so as to allow them to look upwardly or at least above the horizontal, such tilting of the head can only be sustained for a limited period of time. Although muscle strength to support a head in a tilted position does vary from person
15 to person, after a while anyone will start to feel the strain in having to maintain the head in such a condition. In activities such as climbing where a belayer is positioned below the climber and whose function is to maintain the tension in the rope which is attached to the climber, it is essential that this person keeps a close eye on the progress of the climber as he/she ascends or descends. Failure to maintain a substantially constant eye
20 on the progress of the climber could result in a sufficient amount of slack in the rope which if the climber falls, could result in a fall, which may cause injury or death.

It is an object of the present invention to provide a head support which will at least go some way towards providing a means of supporting the head or neck of a person in a tilt back condition or which will at least provide the public with a useful
25 choice.

As used herein, "the horizontal" describes that field of view of the eyes in the plane substantially perpendicular to the body of the user, which is considered as being in the "upright" position. The "upright" position may include a position which is not strictly vertical or upright as in conventionally understood. For example, when in a
30 standing, leaning back, or sitting position, the body is defined as being in the "upright" position. The "horizontal" view is that with the eyes facing substantially straight ahead. In viewing an object "above the horizontal" the head and/or neck will require tilting backwards somewhat from this position.

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"Harness" as used herein may also include a backpack or other system capable of being worn by or attached to a user, and supporting or appending to or functioning as a head or neck support as described.

5 BRIEF DESCRIPTION OF THE INVENTION

Accordingly in a first aspect the present invention consists in a head support comprising or including:

- a) a harness locatable to the upper body portions of a person
- b) a rigid member extending from a region of said harness stabilised in
10 respect of and by the use of the harness relative to the body
wherein, when in use, said harness is attached to the body of a person, said rigid member extending therefrom to provide a support region thereof which when said person is in a substantially upright position, and the head is tilted backwards to allow viewing of an object above the horizontal, said support region comes in contact with
15 at least part of the back of the head and provides at least vertical support to the head.

Preferably said rigid member has a vertically extending portion which, in use extends substantially vertically and parallel with the general upright position of said user, and an outwardly extending portion which extends, in use from said vertically extending portion, outwardly from the body of a user wherein at or near the distal end
20 of said outwardly extending portion said head supporting region is provided.

Preferably said rigid member is secured to said harness at said vertically extending portion thereof.

Preferably said rigid member is provided with padding in those regions which, when said head support is in use, is in contact with the body of the user.

25 Preferably said harness is secured to the vertically extending portion of said rigid member to, when said harness is secured to the body of the user, press said rigid means against the back of the user.

Preferably said rigid member is pressed against is the upper spine region of the back of the user.

30 Preferably said rigid member is an elongate member having a first distal end defining the lower end of the substantially vertical member and a second distal end defining the outer end region of said outwardly extending portion thereof.

Preferably said rigid member is an extrusion, preferably plastics, or is of an elongate sheet material shaped, moulded or fabricated to provide said vertically
35 extending region and said outwardly extending region thereof.

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Preferably said harness includes or comprises at least two shoulder engaging straps, one each to locate over a shoulder of the user and to locate with said rigid means, or an extension thereof, at the back of said user.

5 Preferably said shoulder straps are each endless members in use and have a means to open such as a buckle and also to provide an adjustment in the length of said strap.

10 Preferably said rigid member is provided with lateral extensions, extending from said vertically extending portion of said rigid member from each side thereof each said lateral member having at its distal end thereof a shoulder strap engaging means to allow the location of said shoulder strap with said lateral member.

15 Preferably each lateral member allows the longitudinal sliding engagement of each shoulder strap at its distal ends thereof, to provide, when said harness is in use a directional stability of said second distal end of said substantially vertical member to prevent it from moving to any significant and functionless degree in a substantially horizontal direction in respect of the head.

Preferably the shoulder strap means each locate to said rigid means at the distal end of said vertically extending member thereof.

20 Preferably said harness further includes a chest or waist encompassing strap which is located at substantially the point where said shoulder straps locate at said rigid means, and is preferably provided with a release buckle and adjustable means, about the waist or chest of the user.

Preferably the head support is a recreational head support.

25 Preferably the head support includes adjustment means capable of altering the tilt of said member, and/or of said second distal end of said substantially vertical member relative to said first distal end.

30 In a further aspect the present invention consists in a head support comprising a rigid member having a vertically extending region and an outwardly extending region supporting the head, when in use in respect of the vertically upright body of a user, in a tilted backwards position to allow viewing of an object above the horizontal, wherein said vertically extending member has a region adapted for engaging with a head support receiving means located at/or near the top of a back pack.

Preferably the head support includes adjustment means capable of altering the tilt of said member, and/or of said second distal end of said substantially vertical member relative to said first distal end.

35 Preferably the head support is a recreational head support.

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This invention may also be said broadly to consist in the parts, elements and features referred to or indicated in the specification of the application, individually or collectively, and any or all combinations of any two or more of said parts, elements or features, and where specific integers are mentioned herein which have known equivalents in the art to which this invention relates, such known equivalents are deemed to be incorporated herein as if individually set forth.

The invention consists in the foregoing and also envisages constructions of which the following gives examples.

DESCRIPTION OF PREFERRED EMBODIMENT

One preferred form of the present invention will now be described with reference to the accompanying drawings in which:

Figure 1 is a perspective view of the back of a user of the present invention illustrating the head support located with the user in the preferred condition,

Figure 2 is a front view in direction AA of figure 3 of the head support of the present invention,

Figure 3 is a perspective view of the head support as shown in figure 2,

Figure 4 is a view from the back of an alternative and preferred form of the head support of the present invention

Figure 5 illustrates the rigid member of the head support in association with a lateral stabilising means with which the straps of the harness can locate.

Figure 6 illustrates a side perspective view of a preferred form of the rigid member of the head support.

Figure 7 illustrates a front view in the direction AA of Figure 3 of the preferred form of Figure 6.

Figure 8 illustrates a front view in the direction AA of Figure 3 of an alternative form of the invention, being a back pack.

Figure 9 illustrates the invention in use by, for example, a belayer

Figure 10 illustrates the invention in use by, for example, a climber.

Figure 11 illustrates the invention in use by, for example, a decorator or painter.

With reference to figure 1 there is shown a head support 1 which consists of a rigid member 2 and a harness 3 located or secured with said rigid member.

The rigid member and harness are adapted to be located to the user of the head support of the present invention such that when the user is standing upright and tilts his/her head backwards, there is a region of said rigid member 2 with which the tilted back head can contact and be provided with a vertical support thereby. It is to be noted

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that the support of the present invention may simply provide neck support for viewing above the horizontal rather than head support, without departing from the scope of the present invention. With reference to figures 2, 9, 10 and 11 there is shown a user of the head support with his head tilted backwards and a part of the head locating against a portion of the rigid member to provide the user with a comfortable and vertical support for the head or neck.

In reference to figures 2 and 3 in the preferred form of the present invention the head support consists of harness which is locatable about the upper body regions of a user of the present invention. The harness is of a configuration which can provide at least vertical stability to the rigid member. It is to be noted that the "harness" can also include a backpack without departing from the scope of the invention. In figure 2 in the preferred form there is shown a harness which consists of two shoulder straps 4 which are locatable over the shoulder and underneath the armpits to return back to a region of attachment 5 between the rigid member 6 and the harness 3. In the preferred form the region of attachment is at or towards a lower distal end of the rigid member 6 of the present invention however it is envisaged by the inventor that such location points can vary. With reference to figure 1 there is illustrated the shoulder straps 4 running from the region of attachment to the rigid member, over the shoulders under the arms and back towards the region of securement. It will be appreciated by a person skilled in the art that such shoulder straps may be provided with buckles and/or adjustment means to allow for the head support of the present invention to be reconfigured to allow users of different body shapes and sizes to use the particular head support. Furthermore, as discussed the shoulder straps may be those of a backpack configuration.

As indicated in Figures 2, 3, 6 and 7 in the preferred form the rigid member 6 is preferably made up from a sheet material such as a moulded plastic, composite or metallic or non-metallic material. The rigid member 6 preferably consists of a vertically extending region 7 and an outwardly extending region 8. The vertically extending region 7 is provided and adapted in association with the harness to lie parallel to and in engagement with the back of a user of the head support of the present invention. Preferably said vertically extending region 7 is of sufficient length to be pressed when said harness is engaged to the user, against the back of the user to provide some stable support in respect of the user of the present invention.

The outwardly extending portion 8 of the rigid member has a head contacting region 9 with which, when said head support is in use, the tilted back head of a user can comfortably located. As indicated in Figures 6 and 7, the outwardly extending portion

may be concave to allow engagement of the head as shown in Figures 3 and 4, for comfort in the wearing of the head support of the present invention there is preferably provided a padded surface 10 on that side of the rigid member which is to be in contact with the body of the user.

5 Figure 4 shows an alternative configuration or an additional configuration to the harness of the head support of the present invention. To encourage the rigid means to remain in stable and close contact with the back of a user a further portion of the harness is provided to encompass the chest or waist of the user of the device. This portion 11 may be attached to the shoulder straps 4 and/or be attached to the rigid
10 member of the present invention. Again a person skilled in the art will appreciate that this strap 11 may be provided with a buckle and/or strap length adjusting means to allow a particular head support of the present invention to be adapted for use by different sized and shaped people.

 For further support to the rigid means of the present invention a lateral stabiliser
15 may be rigidly attached or form part of the rigid member 6. With reference to figure 5 such a lateral stabiliser may for example be arms 20 which extend outwardly (and preferably upwardly) from a region of the rigid member 6. Preferably the region from which the lateral stabilisers extend is a lower or lower most region of the rigid member. The lateral stabilisers are preferably made of a material similar to that of the rigid
20 member or may alternatively be made from any other material and which although preferably deformable, does have its own inherent rigidity. In the preferred form the lateral stabilisers locate at the distal ends with the shoulder straps 4. The shoulder straps will tend to draw the lateral stabiliser to conform with the upper back and shoulder shape of the user of the present invention and hence in the preferred form such
25 lateral stabilisers are of a sheet material or strip wherein the plane of the sheet or strip is in a general parallel direction with the back of the user. Such an orientation of the plane of the lateral stabilisers will allow for it to be conformed or at least in part contoured with the back of the user.

 Preferably at the distal ends of the lateral stabiliser there is the provision of the
30 slot through which the shoulder straps 4 can extend while still allowing the distal ends of the lateral stabilisers to have some association with said shoulder straps.

CLAIMS

1. A head support comprising or including:
 - a) a harness locatable to the upper body portions of a person
 - b) a rigid member extending from a region of said harness stabilised in
5 respect of and by the use of the harness relative to the body wherein, when in use, said harness is attached to the body of a person, said rigid member extending therefrom to provide a support region thereof which when said person is in a substantially upright position, and the head is tilted backwards to allow viewing of an object above the horizontal, said support region comes in contact with
10 at least part of the back of the head and provides at least vertical support to the head.
2. A head support as claimed in claim 1 wherein said rigid member has a vertically extending portion which, in use extends substantially vertically and parallel with the general upright position of said user, and an outwardly extending portion which extends, in use from said vertically extending portion, outwardly from the body of a
15 user wherein at or near the distal end of said outwardly extending portion said head supporting region is provided.
3. A head support as claimed in claim 2 wherein said rigid member is secured to said harness at said vertically extending portion thereof.
4. A head support as claimed in claims 1 to 3 wherein said rigid is provided with
20 padding in those regions which, when said head support is in use, is in contact with the body of the user.
5. A head support as claimed in claims 2 to 4 wherein said harness is secured to the vertically extending portion of said rigid member to, when said harness is secured to the body of the user, press said rigid member against the back of the user.
- 25 6. A head support as claimed in claim 5 wherein said rigid member is pressed against is the upper spine region of the back of the user.
7. A head support as claimed in any one of the preceding claims wherein said rigid member is an elongate member having a first distal end defining the lower end of the substantially vertical member and a second distal end defining the outer end region of
30 said outwardly extending portion thereof.
8. A head support as claimed in any one of the preceding claims wherein said rigid member is an extrusion, preferably plastics, or is of an elongate sheet material shaped, moulded or fabricated to provide said vertically extending region and said outwardly extending region thereof.
- 35 9. A head support as claimed in any one of the preceding claims wherein said harness includes or comprises at least two shoulder engaging straps, one each to locate

over shoulder of the user and to locate with said rigid means, or an extension thereof, at the back of said user.

5 10. A head support as claimed in claim 9 wherein said shoulder straps are each endless members in use and have a means to open such as a buckle and also to provide an adjustment in the length of said strap.

10 11. A head support as claimed in claim 9 or 10 wherein said rigid member is provided with lateral extensions, extending from said vertically extending portion of said rigid member from each side thereof each said lateral member having at its distal end thereof a shoulder strap engaging means to allow the location of said shoulder strap with said lateral member.

15 12. A head support as claimed in claim 11 wherein each lateral member allows the longitudinal sliding engagement of each shoulder strap at its distal ends thereof, to provide, when said harness is in use a directional stability of said second distal end of said substantially vertical member to prevent it from moving to any significant and functionless degree in a substantially horizontal direction in respect of the head.

13. A head support as claimed in claim 12 wherein the shoulder strap means each locate to said rigid means at the distal end of said vertically extending member thereof.

20 14. A head support as claimed in any one of the preceding claims wherein said harness further includes a chest or waist encompassing strap which is located at substantially the point where said shoulder straps locate at said rigid means, and is preferably provided with a release buckle and adjustable means, about the waist or chest of the user.

25 15. A head support as claimed in any one of the preceding claims wherein the head support includes adjustment means capable of altering the tilt of said member, and/or of said second distal end of said substantially vertical member relative to said first distal end.

16. A head support as claimed in any one of the preceding claims wherein the head support is a recreational head support.

30 17. A head support comprising a rigid member having a vertically extending region and an outwardly extending region supporting the head, when in use in respect of the vertically upright body of a user, in a tilted backwards position to allow viewing of an object above the horizontal, wherein said vertically extending member has a region adapted for engaging with a head support receiving means located at/or near the top of a back pack.

35 18. A head support as claimed in claim 17 wherein the head support is a recreational head support.

19. A head support as claimed in any one of the preceding claims wherein the head support includes adjustment means capable of altering the tilt of said member, and/or of said second distal end of said substantially vertical member relative to said first distal end.
- 5 20. A head support substantially as described herein with reference to the accompanying drawings.

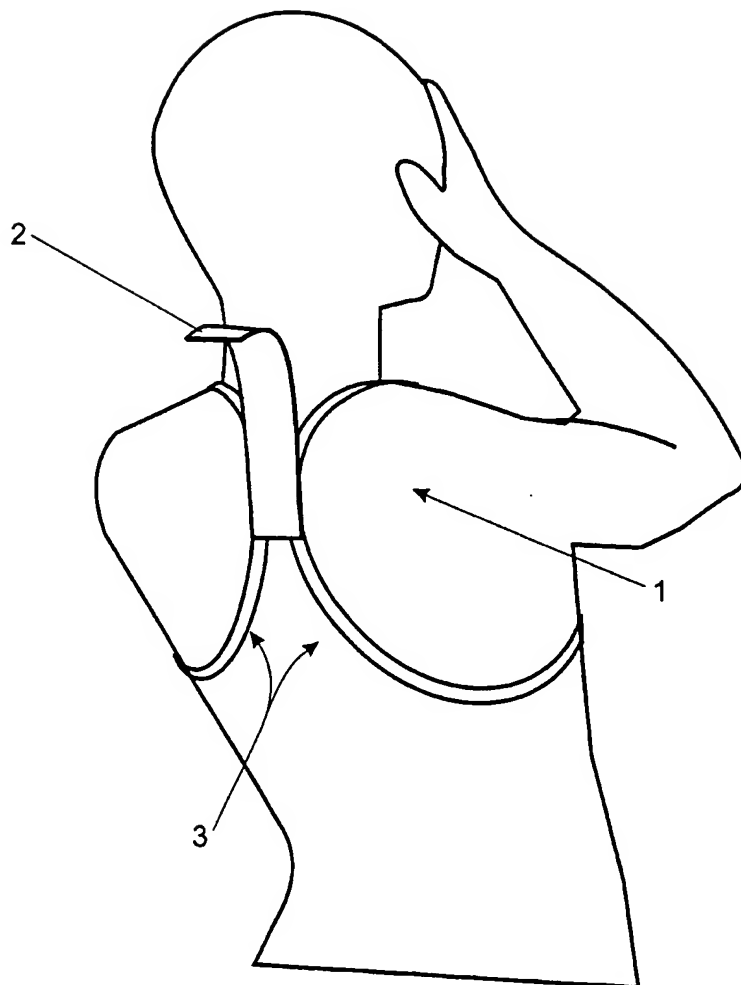


FIGURE 1

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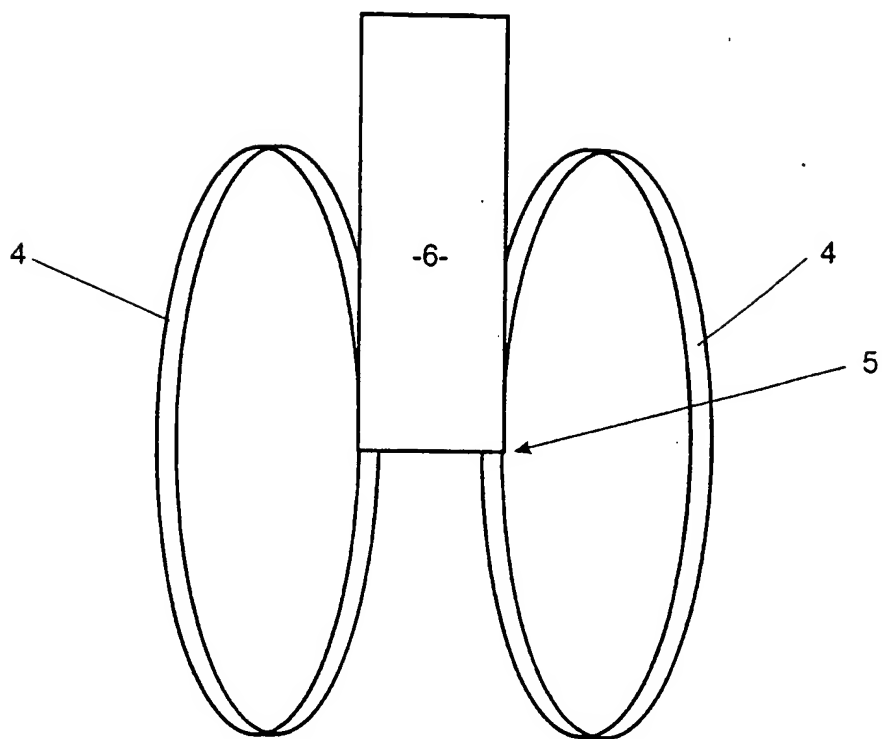


FIGURE 2

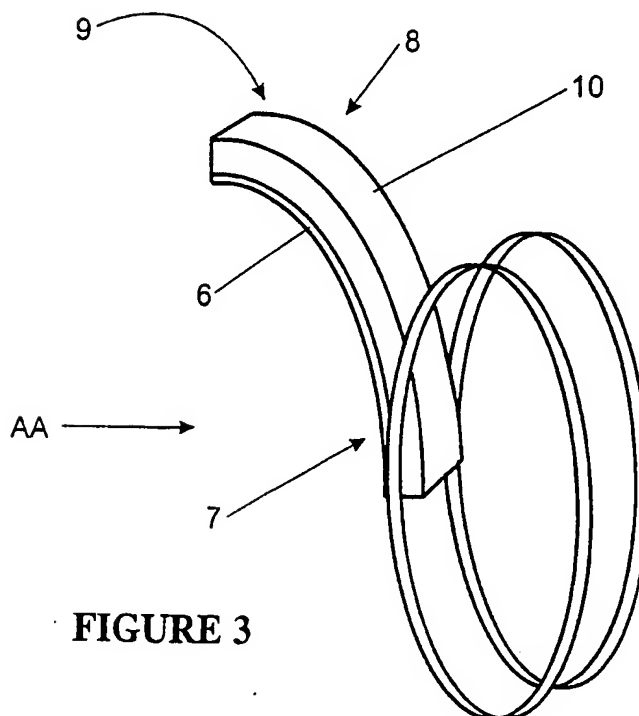


FIGURE 3

FIGURE 4

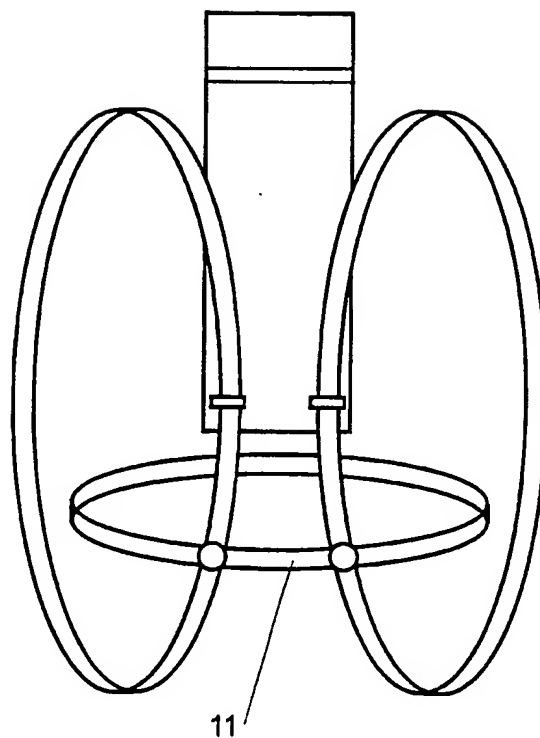
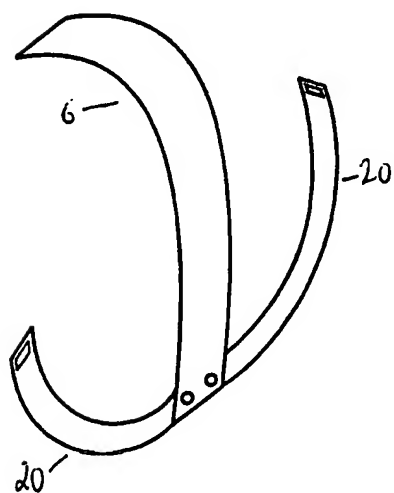


FIGURE 5



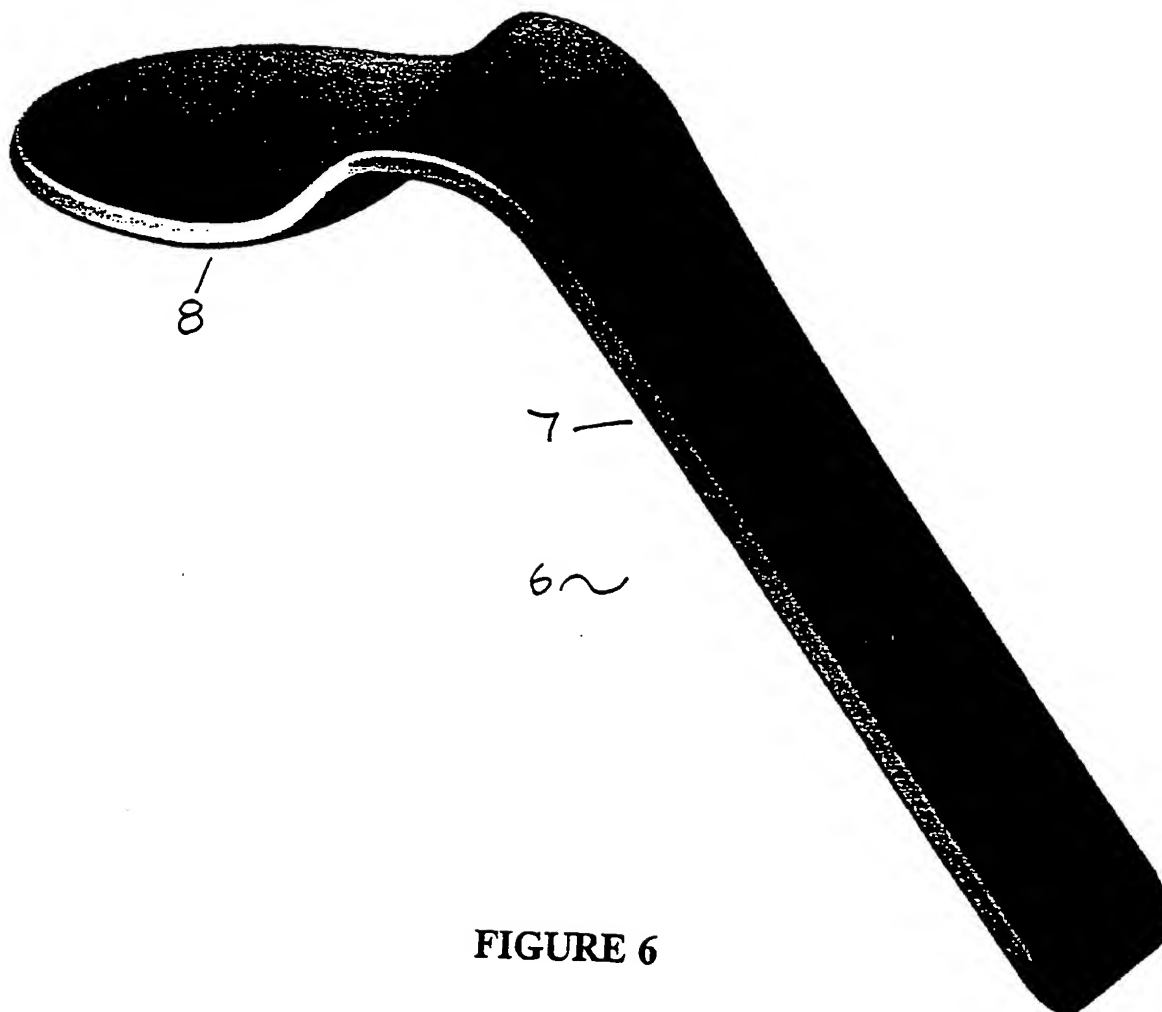
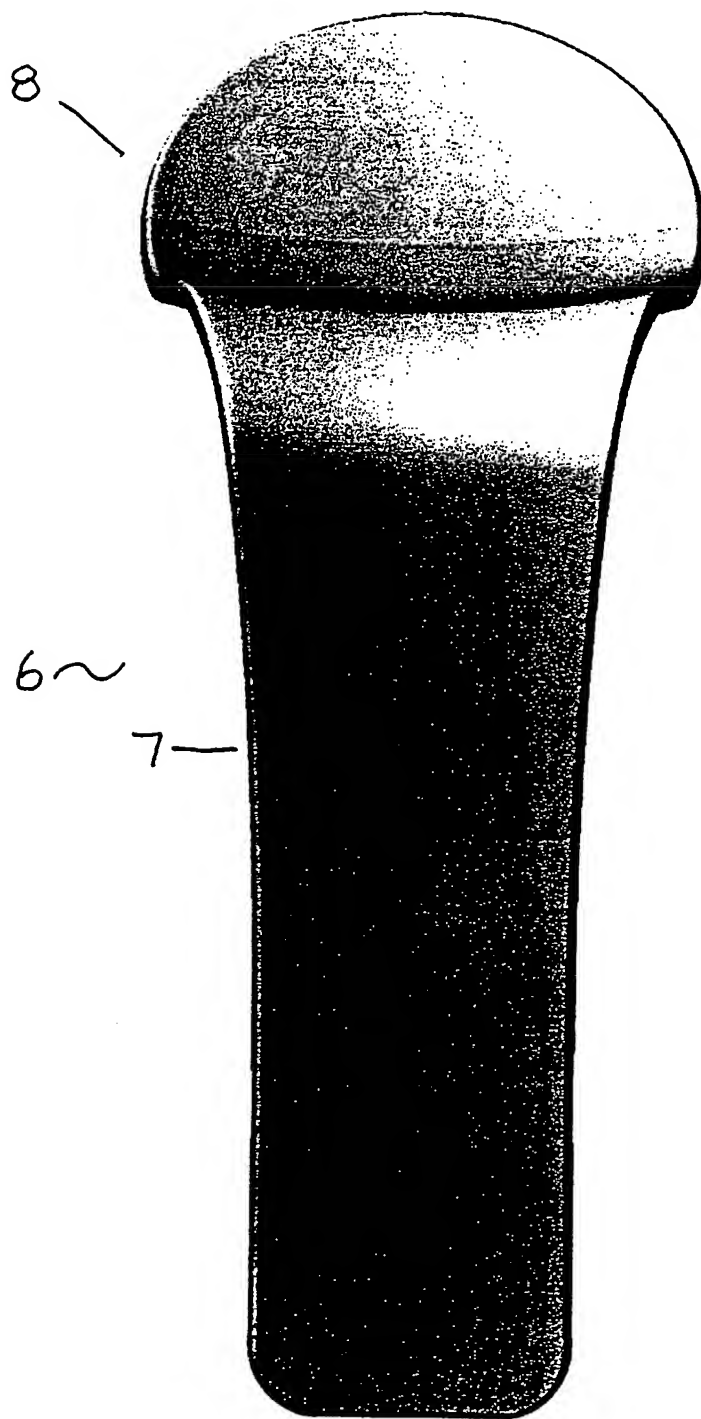


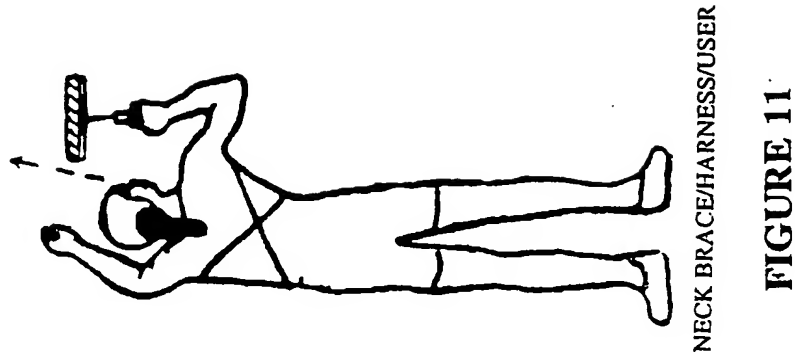
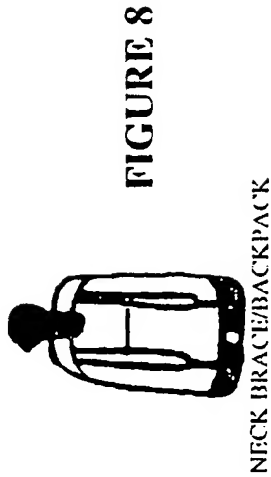
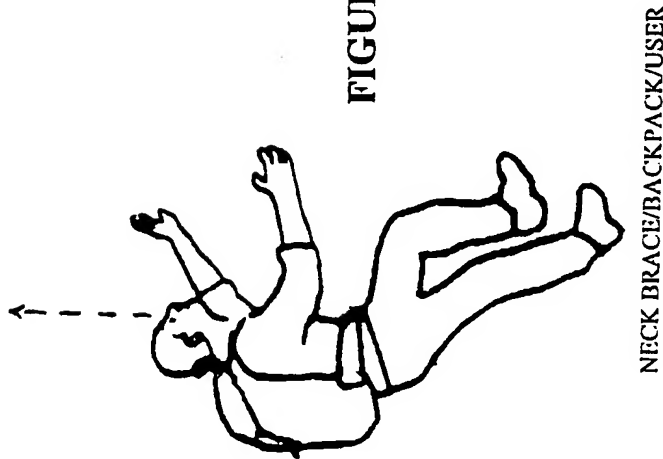
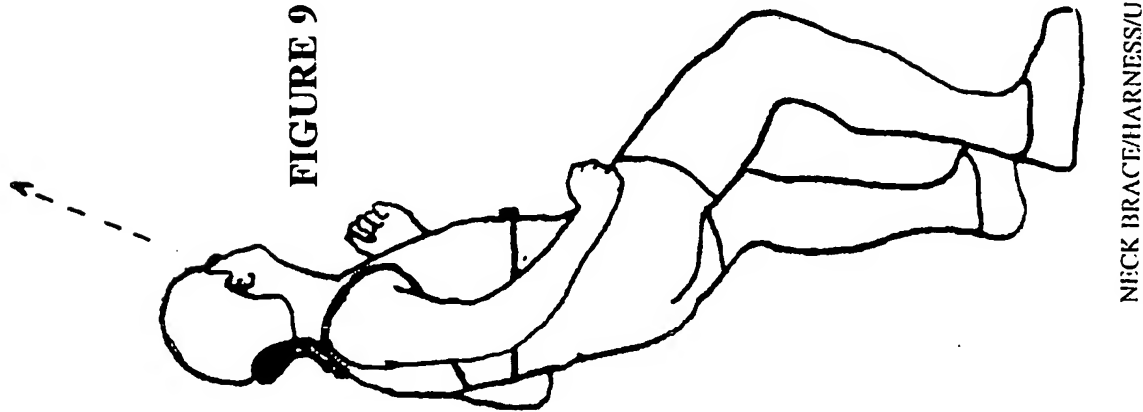
FIGURE 6

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FIGURE 7



INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ00/00106

A. CLASSIFICATION OF SUBJECT MATTER		
Int. Cl. ⁷ : A61F 5/00, A63B 29/00		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) IPC: A61F 5/-, A63B 29/-		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT + Keywords		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 2753116 A1 (OTTO BOCK ORTHOPADISCHE INDUSTRIE KG) 7 June 1979 figure 3	1-16
A	US 4527833 A (PARKER) 9 July 1985	
A	US 5248293 A (HUBBARD et al.) 28 September 1993	
<input type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex		
<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>		
Date of the actual completion of the international search 6 September 2000		Date of mailing of the international search report 13 SEP 2000
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929		Authorized officer GEOFF SADLIER Telephone No : (02) 6283 2114

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/NZ00/00106

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member			
DE	2753116	NONE				
US	4527833	NONE				
US	5248293	US	5242377	US	5314404	CA 2105645
						END OF ANNEX